

ANNEX
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AND
L3HARRIS TECHNOLOGIES, INC.
UNDER SPACE ACT UMBRELLA AGREEMENT
SAA1-32449, DATED 12/15/2020 (ANNEX NUMBER 3).

ARTICLE 1. PURPOSE

This Annex shall be for the purpose of utilizing the NASA White Sands Test Facility's hypervelocity impact test facility and technical expertise in performing hypervelocity impact testing to simulate the micrometeoroid and orbital debris (MMOD) impacts of spacecraft material. This agreement will facilitate these efforts, allow for the parties to benefit from the capabilities and roles of each organization, and conduct research, development, testing, and evaluation of various aerospace technologies.

The legal authority for this Annex, consistent with the Umbrella Agreement, is in accordance with the Space Act, Other Transactions Authority (OTA), 51 U.S.C. § 20113(e).

ARTICLE 2. RESPONSIBILITIES

A. NASA WSTF will use reasonable efforts to:

1. Support development of test documentation such as test plans and Test Readiness Reviews (TRRs) and lead TRRs
2. Perform hypervelocity impact tests on L3 provided material samples in accordance with applicable WSTF Job Instructions (WJI). The specific test requirements (projectile, velocity, impact angle, and imaging) will be documented on WSTF Form 524, NASA WSTF Hypervelocity Test Request. Test conditions shall fall within the following parameters:
 - a. Sample size: test articles sizes must not exceed WSTF facility capability
 - b. Velocities: not to exceed 8 km/s
 - c. Projectile size: anticipated range of 0.05 mm to 2.5 mm
 - e. Temperature: room temperature
3. Provide test consumables and test structures to hold the L3 provided test sample in the 0.17-caliber test chamber.
4. Provide test documentation/report including mass, diameter and impact velocity of the projectile, impact angle, ultra-high speed still photos of projectile's greater than 0.4mm prior to impact, high-speed video of the impact event, and still photos of the specimen and witness plate both pre and posttest.
5. Return test specimen hardware to L3 at the conclusion of the test program.

B. Partner will use reasonable efforts to:

1. Provide support of projects undertaken in any Annex;
2. Provide internal coordination of approvals for Annexes;
3. Provide for a single point of contact for Annex development and operations.
4. Provide NASA WSTF with L3-owned test specimens and test requirements for hypervelocity impact tests. Test article geometry to be within size constraints of the WSTF test chambers.
5. Support the development of test plans and TRRs and participate in TRRs.

ARTICLE 3. SCHEDULE AND MILESTONES

The planned major milestones for the activities for this Annex defined in the "Responsibilities" Article are as follows:

L3 provides WSTF with test requirements and funding	Within two weeks of SAA Effective Date
WSTF will provided test plan feedback	Within one week of submitted test plan
L3 provides WSTF with final test requirements.	Within one week of receipt of WSTF comments
WSTF to lead Test Readiness Review with L3 participation	After funding is received by WSTF and within two weeks after receipt of final L3 test requirements
L3 to provide WSTF with test articles.	One week prior to testing
WSTF to perform Hypervelocity Impact (HVI) tests	As scheduled per TRR
WSTF provides test documentation/report to L3	Two weeks after completion of test
WSTF will return test specimens	Within two weeks after completion of test series

ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA an estimated cost of \$101,390.03 for NASA to carry out its responsibilities under this Annex.
Each payment shall be marked with JSC White Sands Test Facility and Annex number 3.

B. NASA will not provide services or incur costs beyond the current funding. Although NASA has made a good faith effort to accurately estimate its costs, it is understood that

NASA provides no assurance that the proposed effort under this Annex will be accomplished for the estimated amount. Should the effort cost more than the estimate, Partner will be advised by NASA as soon as possible. Partner shall pay all costs incurred and have the option of canceling the remaining effort, or providing additional funding in order to continue the proposed effort under the revised estimate. Should this Annex be terminated, or the effort completed at a cost less than the agreed-to estimated cost, NASA shall account for any unspent funds within one year after completion of all effort under this Annex, and promptly thereafter, at Partner's option return any unspent funds to Partner or apply any such unspent funds to other activities under the Umbrella Agreement. Return of unspent funds will be processed via Electronic Funds Transfer (EFT) in accordance with 31 C.F.R. Part 208 and, upon request by NASA, Partner agrees to complete the Automated Clearing House (ACH) Vendor/Miscellaneous Payment Enrollment Form (SF 3881).

ARTICLE 5. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. Data produced under this Annex which is subject to paragraph C. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement will be protected for the period of one year.

B. Under paragraph H. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement, Disclosing Party provides the following Data to Receiving Party. The lists below may not be comprehensive, are subject to change, and do not supersede any restrictive notice on the Data provided.

1. Background Data:

The Disclosing Party's Background Data, if any, will be identified in a separate technical document.

2. Third Party Proprietary Data:

The Disclosing Party's Third Party Proprietary Data, if any, will be identified in a separate technical document.

3. Controlled Government Data:

The Disclosing Party's Controlled Government Data, if any, will be identified in a separate technical document.

4. The following software and related Data will be provided to Partner under a separate Software Usage Agreement:

None

ARTICLE 6. TERM OF ANNEX

This Annex becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect until the completion of all obligations of both Parties hereto, or one year from the Effective Date, whichever comes first, unless such term exceeds the duration of the Umbrella Agreement. The term of this Annex shall not exceed the term of the Umbrella Agreement. The Annex automatically expires upon the expiration of the Umbrella Agreement.

ARTICLE 7. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Annex by providing thirty (30) calendar days written notice to the other Party.

ARTICLE 8. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Annex.

Technical Points of Contact

NASA White Sands Test Facility
Daniel Wentzel
Hypervelocity Project Manager
Mail Suite: RF
12600 NASA Road
Las Cruces, NM 88012
Phone: 575.524.5038
daniel.j.wentzel@nasa.gov

L3HARRIS TECHNOLOGIES, INC.
L3 KEO
Joseph Trevisani
Lead Space Environments Engineer
50 Prince Street
50 Prince Street
Northhampton, MA 01060-3635
Phone: 585.269.6616
Joseph.Trevisani@L3Harris.com

ARTICLE 9. MODIFICATIONS

Any modification to this Annex shall be executed, in writing, and signed by an authorized representative of NASA and the Partner. Modification of an Annex does not modify the terms of the Umbrella Agreement.

ARTICLE 10. SIGNATORY AUTHORITY

The signatories to this Annex covenant and warrant that they have authority to execute this Annex. By signing below, the undersigned agrees to the above terms and conditions.

NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION
WHITE SANDS TEST FACILITY

L3HARRIS TECHNOLOGIES, INC.
L3 KEO

BY: _____
Jason E. Noble
Director, White Sands Test Facility

BY: _____
Heather Johnson
Sr. Manager, Supply Chain

DATE: _____

DATE: August 22, 2022